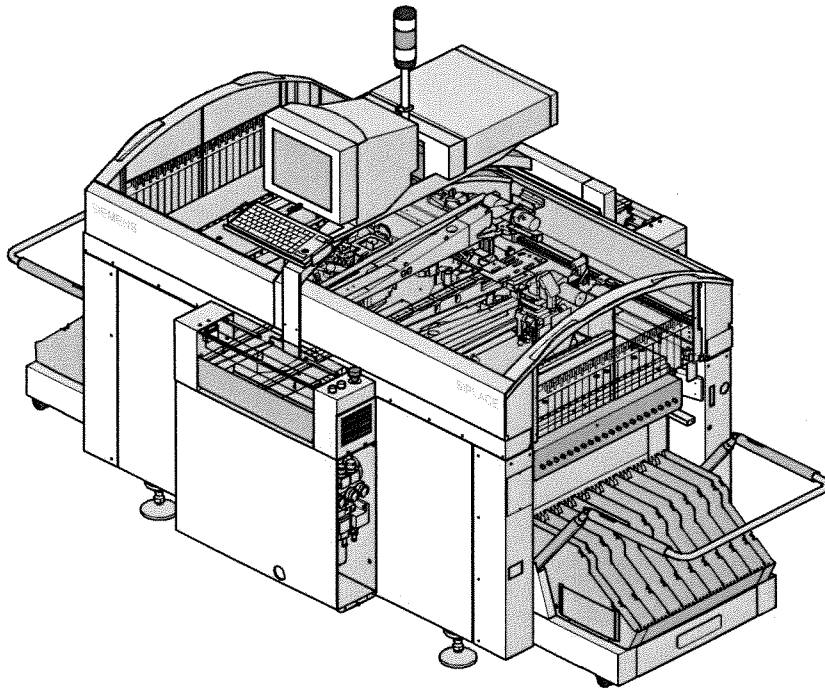


**SIEMENS**

## **Quick Reference Guide**

SIPLACE S-23 HM User Manual  
From Software Version SR.405.xx  
05/99 Issue



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The information given in this printed documentation is however regularly reviewed and necessary corrections included in subsequent editions. We would appreciate any suggestions for improvements.)

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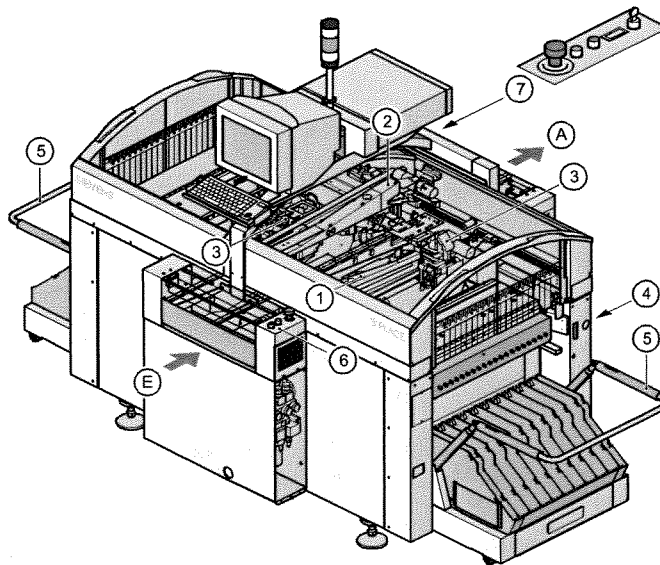
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## Abbreviations

The following abbreviations are employed in this quick reference guide:

DEV	Originator of the error
BC	Barcode
BE, Cmp, CO	Component
SF	Single functions
#E	Error counter
GF	Package form
PCB, LP	Printed circuit board
Seg	Segment
TR/D/T	Track/Division/Tray
↑ UM	See User Manual, section ...

## Structure of the placement system

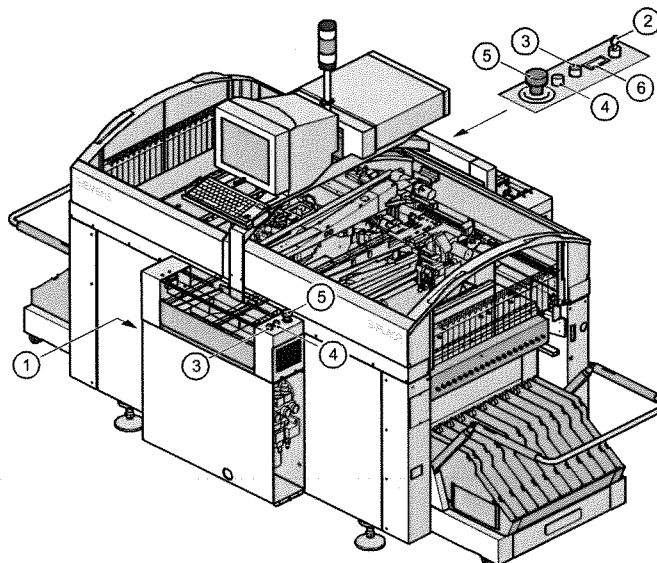


- ① Gantry 1
- ② Gantry 2
- ③ 12-segment revolver head
- ④ Sockets for the component changeover table cable
- ⑤ Component changeover table
- ⑥ Controls, input side
- ⑦ Controls, output side

- A PCB conveyor - output side
- E PCB conveyor - input side

## Switches and buttons on the placement system

The following diagram shows the positions of the switches and buttons on the placement system.



- ① Main switch (red with yellow enclosure)
- ② Key switch
- ③ Stop button (black)
- ④ Start button (white)
- ⑤ Emergency stop mushroom-head push-button
- ⑥ Component counter

### Main switch

The main switch is used to switch the power supply to the placement system on and off.



#### RISK OF DEATH

Certain parts inside the placement system continue to carry potentially lethal voltages even when switched off at the main switch.

### Key switch

The key switch is normally set to the "0" position during operation. The key should be removed and kept in a safe place. Only authorised personnel may turn it to the "I" position (line engineer mode), and then only for certain maintenance or servicing work.

### Stop button

This button is used to stop placement on the placement system.

### Start button

Use this button to start the placement system after switching on or eliminating a fault.

### Emergency stop mushroom-head push-button

The emergency stop mushroom-head push-button latches in place when it is pressed. The power supply to the gantry axes, component changeover tables, conveyor belts and cutting devices is interrupted and the power

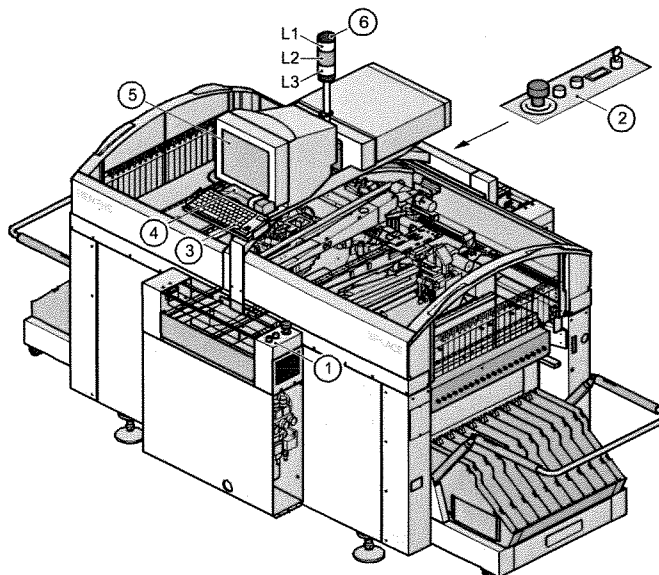
supply for the star axes of the placement heads is reduced. Turn the button to release it.

### Component counter

The component counter shows the number of components that have been processed.

## Displays and controls

The following diagram shows the displays and controls.



- ① Controls, input side
- ② Controls, output side
- ③ Keyboard with integral trackball
- ④ Component barcode reader
- ⑤ Touchscreen
- ⑥ Main fault indicator
- L1 White fault indicator lamp: gantry 2, location 3
- L2 Green operating status lamp
- L3 White fault indicator lamp: gantry 1, location 1

### Description of the displays and controls

All the controls can be reached by anyone who is more than 1.60 m tall.

#### Touchscreen

As an alternative to the trackball you can position the mouse pointer on the screen and operate it by touching the screen with your finger. The resolution is 640 x 480 pixels.

#### Keyboard with integral trackball

The keyboard and trackball are located beneath the screen. The keyboard can be raised and lowered.

### Component barcode reader (option)

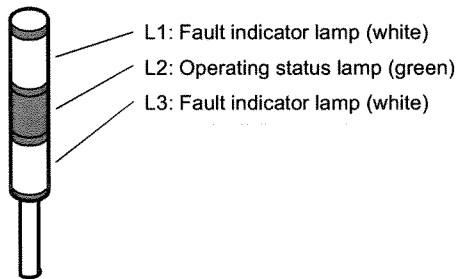
There is a compartment for a Datalogic DL 910 component barcode reader between the keyboard and the screen. The barcode reader enables the components to be set up and topped up quickly and reliably.

### Main fault indicator

The sequence of colours of the indicator lamp is white (L1) - green (L2) - white (L3). It signals different operating statuses and faults on the placement system.

### Functional description of the main fault indicator

**Main fault indicator**

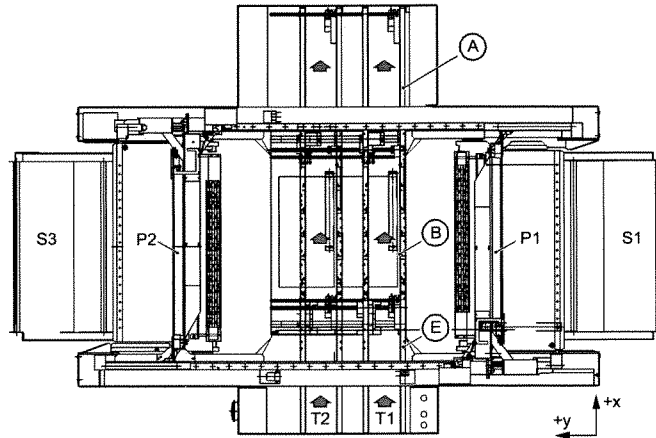


### General operating statuses

- *Operating status lamp (green) on continuously*  
The placement system is in service
- *Operating status lamp (green) flashes*  
The placement system is waiting for a PCB on the input belt or the placement system is waiting until the output belt is free.
- *Top white fault indicator lamp L1 flashes*  
One or more tracks are empty on the right-hand side of the placement system. The placement system continues to place any remaining components.
- *Bottom white fault indicator lamp L3 flashes*  
One or more tracks are empty on the left-hand side of the placement system. The placement system continues to place any remaining components
- *Top white fault indicator lamp (L1) on continuously - green operating status lamp (L2) off*  
An error has occurred on the right-hand side of the placement system -> the placement system has stopped.
- *Bottom white fault indicator lamp (L3) on continuously - green operating status lamp (L2) off*  
An error has occurred on the left-hand side of the placement system -> the placement system has stopped.
- *Both white fault indicator lamps (L1 and L3) on continuously - green operating status lamp off*  
An error has occurred that affects the entire placement system -> the placement system has stopped.

## Machine Areas

The figure below provides a diagrammatic overview of the individual areas of a SIPLACE S-23 HM placement station.  
The terms used in the figure to describe these areas are also used in the texts in the user interface and in the User Manual.



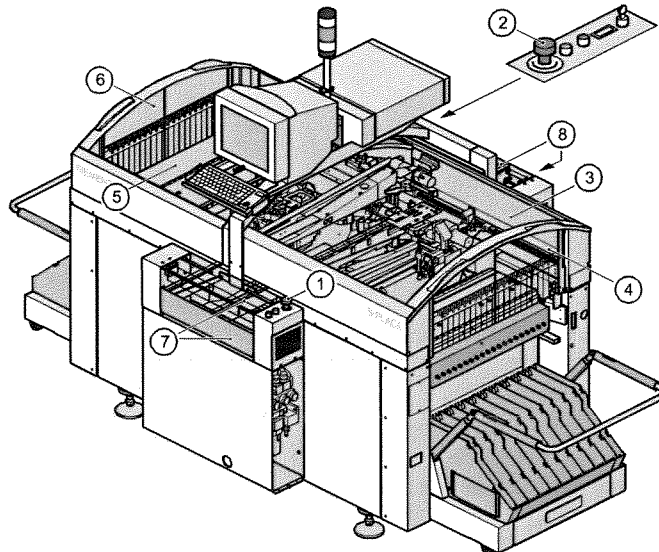
- A Output conveyor
- E Input conveyor
- B Processing conveyor
- P1 Gantry 1
- P2 Gantry 2
- S1 Location 1
- S3 Location 3
- T1 Conveyor track 1
- T2 Conveyor track 2 (twin conveyor option)

The PCB conveyor is divided into the following sections:

- Input conveyor
- Processing conveyor
- Output conveyor

## Safety devices

### Emergency stop mushroom-head push-buttons



- ① Emergency stop mushroom-head push-button, input side
- ② Emergency stop mushroom-head push-button, output side
- ③ Protective cover, right-hand side
- ④ Protective glass disks, right-hand side
- ⑤ Protective cover, left-hand side
- ⑥ Protective glass disks, left-hand side
- ⑦ Cover and guard on the input belt
- ⑧ Cover and guard on the output belt

If serious problems occur:



The placement system will stop immediately. Attempt to eliminate the problem. If this is not possible, call the line engineer.

#### Continue processing

- Turn the emergency stop mushroom-head push-button to the left to release it.
- Press the Start button.

### Protective covers

Make sure that all covers are closed when the machine is operating. As soon as a cover is opened, the machine will stop and an error message of the following type may be displayed during placement:

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*General error: 270 PCB interrupted due to EMERGENCY STOP  
Transp.: 1 DEV:1 #E:1*

---

- Close the covers and press the Start button.



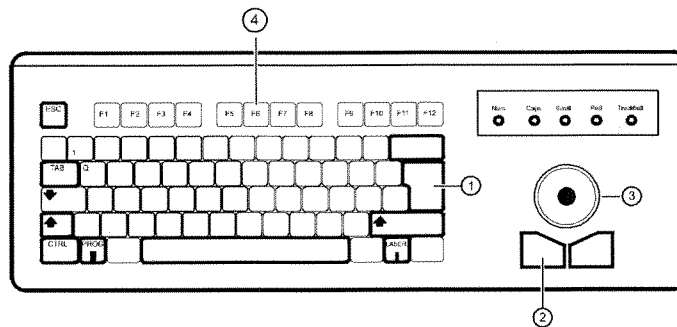
## Menu control of the machine

The menu control and the user interface of the machine are based on the Microsoft Windows standard. You can initiate actions in the individual menus by using

- function keys F1 to F12 on the keyboard,
- the trackball and the left-hand mouse button or
- the touchscreen.
- You can open pull-downs and their submenus by pressing the Alt-key in combination with a 'hot key'.

## Keyboard with integrated mouse (trackball)

IBM-compatible  
keyboard with  
German  
character set



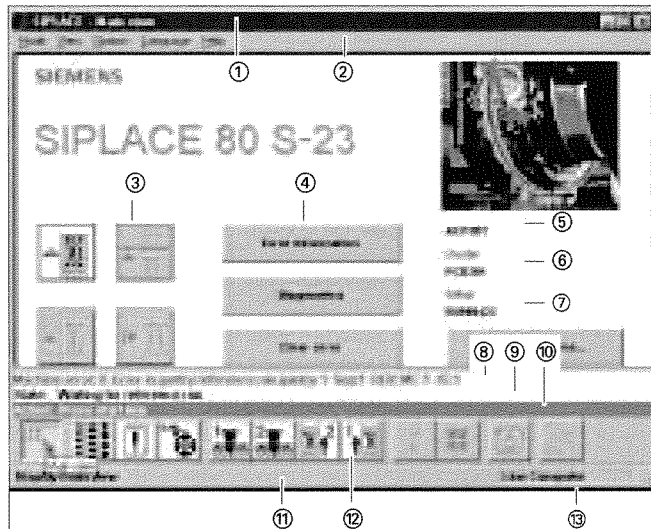
- ① Return key
- ② Left-hand mouse button
- ③ Trackball
- ④ Function keys F1 to F12

## Touchscreen

As an alternative to the trackball you can position the mouse pointer on the screen and operate it by touching the screen with your finger.

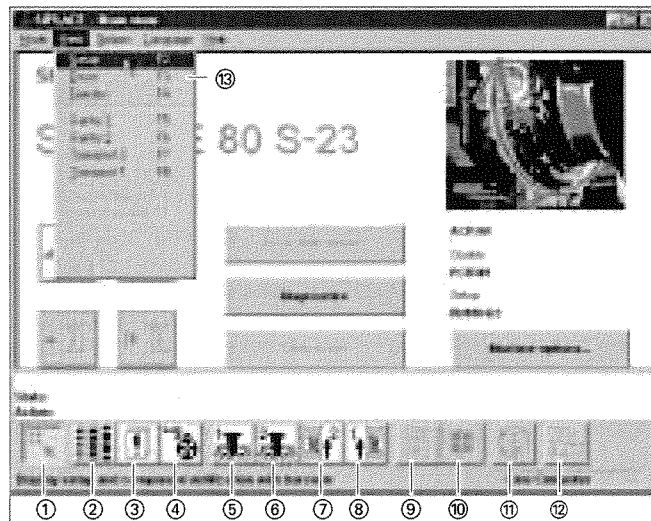
## User Interface

### Main View - Layout and Explanation of the Symbols



- |                                  |                               |
|----------------------------------|-------------------------------|
| ① Indicates the current menu     | ⑧ Error message line          |
| ② Menu line with pull-down menus | ⑨ Status display              |
| ③ Buttons for user actions       | ⑩ Operator actions            |
| ④ Button for calling submenus    | ⑪ Information line for menus  |
| ⑤ Job name                       | ⑫ Icons with bubble help text |
| ⑥ File name of loaded cluster    | ⑬ Machine operating mode      |
| ⑦ File name of loaded setup      |                               |

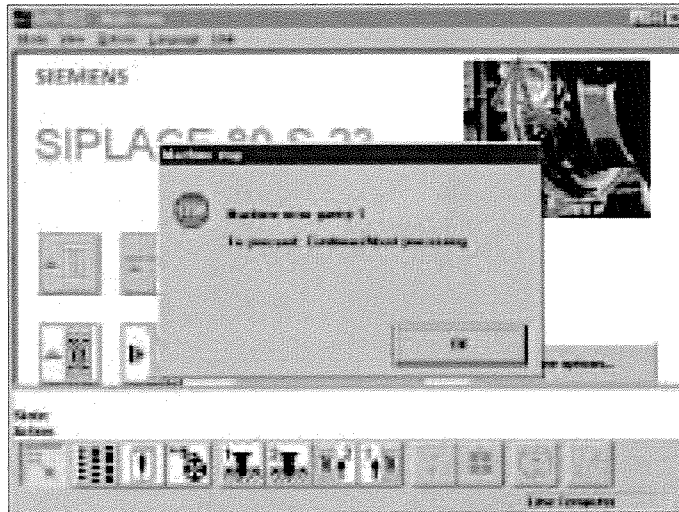
### Main View - Submenus



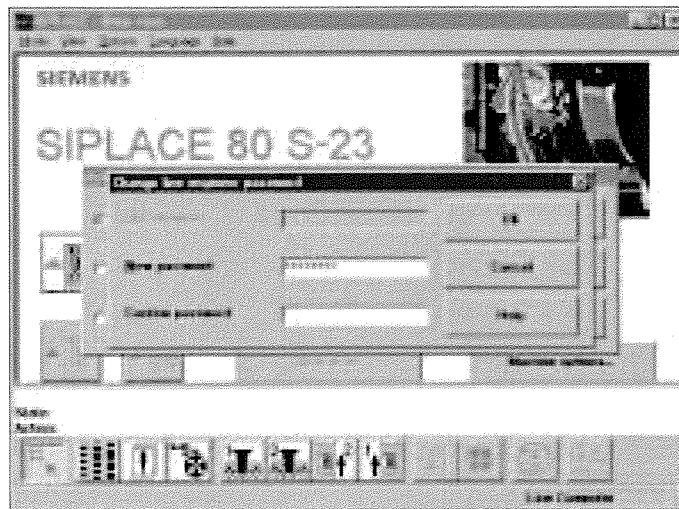
- |                                   |  |
|-----------------------------------|--|
| ① Main View (F1)                  | ⑧ SF PCB transport 1 (F7)              |
| ② Display setup (F2)              | ⑨ Teach and test PCB fiducial (F9)     |
| ③ Display errors (F3)             | ⑩ Measure cmp and change GF data (F10) |
| ④ Component feeder systems (F4)   | ⑪ SITEST                               |
| ⑤ SF gantry 1 (F5)                | ⑫ GEM status (F11), option             |
| ⑥ SF gantry 2 (F6)                | ⑬ Pull-down menu                       |
| ⑦ SF PCB transport 2 (F8), option |  |

### On-screen displays - warning and message boxes

Warning and message boxes notify the user of faults or errors which have occurred in the machine; they also request the user to perform various actions.

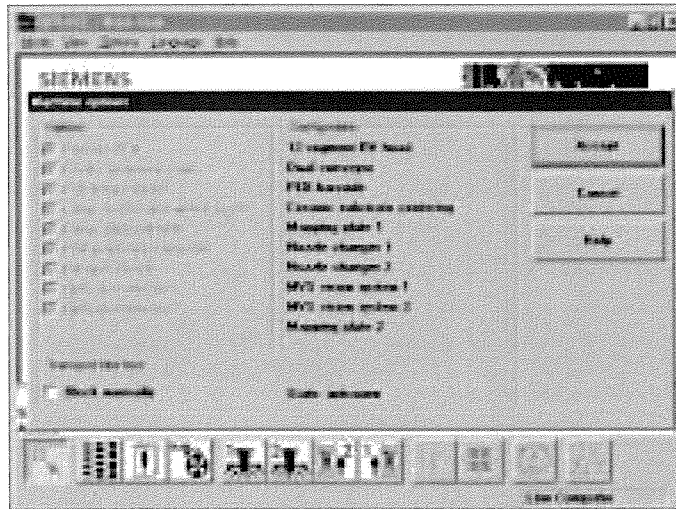


### On-screen displays - input box



- Enter the desired information into the input field and click on the OK button to finish your input. Click on the Cancel button, if you want to discard your input. The Help button provides access to on-line help.

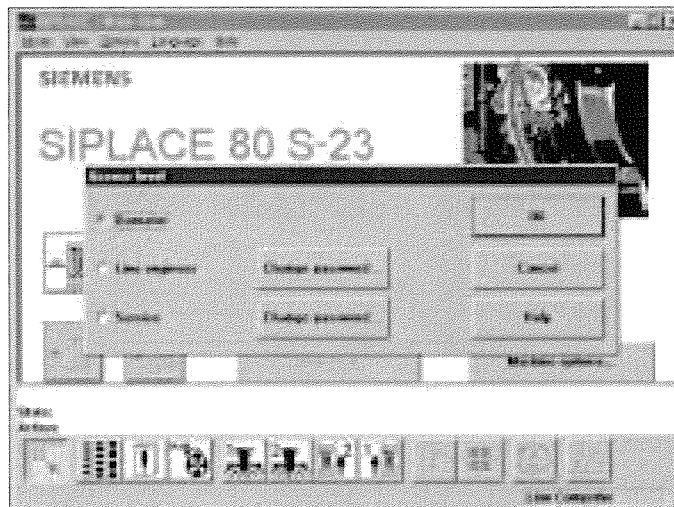
### On-screen display - control box



In the control box you can activate or deactivate options. Activated options are indicated by crosses in the check boxes. You can activate or deactivate options by clicking on the check box with the mouse pointer. Click on Accept to save the settings you have selected or discard them by pressing Cancel. Click on the Help button to activate on-line help.

Please note, that you will need the line engineer access authorization for certain options and that these options can only be activated or deactivated by persons with that authorization.

### On-screen display - selection box



- Click on the option you want and confirm your choice by pressing OK. You can discard your choice by clicking on Cancel. Click on the Help button to activate on-line help.

## Switching on the SIPLACE line

### Switching on the line computer

- Switch on the uninterruptible power supply (UPS).  
The line computer software is uploaded.  
The login dialog window appears on the screen after approximately 2 minutes.
- Enter **plr** in the "login" box and confirm your entry by pressing the RETURN key.
- Enter the password in the "Password" box and press the RETURN key. If no password is required, then just press the RETURN key.  
The desktop (starting window) will appear on screen after approximately 3 minutes with the overlying login box.
- Enter the user name defined for your user account in the "User" box, and enter the corresponding password in the "Password" box.
- Click on **Ok** to confirm. The functions of the line computer program can now be executed according to your access rights.

### Starting the stations



#### ATTENTION

Do not switch on the stations and peripherals until the Desktop menu is displayed on the monitor of the line computer. Failure to observe this may result in communications problems.

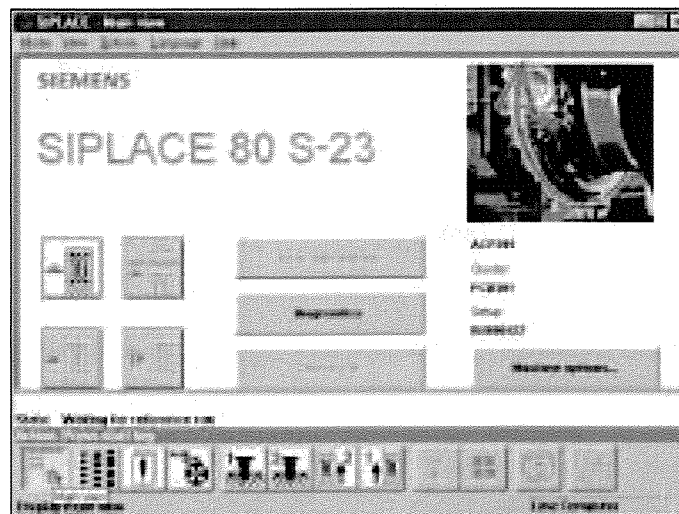
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#### Before you switch on the machine ...

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- Carry out a visual inspection of the machine. In particular make sure that there are no obstacles within the range of movement of the gantries.
- Make sure that the z axes of all heads are in their top end positions.
- Check that the power and compressed air supplies are connected.
- Switch on the machine at the main switch. With the line computer connected and provided there are no communication problems the main menu for the user class Operator will appear.



- When the prompt appears on screen, press one of the white Start buttons on the input/output side or on the left or right operating panel.

The placement system is ready for use again as soon as the reference point run has ended.

## Switching off the SIPLACE line



### ATTENTION

Before you switch off the line make sure of the following:

- All placement and glueing operations must have been completed at the stations.
- The z axes of all placement and glueing heads have to be in their top end positions.
- No placement head should still be carrying components.
- All gantries must have moved to their waiting positions.
- The station computers are shut down safely.

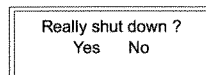
## Switching off the line computer



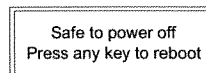
### CAUTION

Never switch off the line computer simply by switching off the main switch. Always shut down the operating system properly. If you fail to do so, you may end up with considerable loss of data or corrupted programs.

- Position the mouse pointer at the top or bottom right-hand edge of the screen. The pointer will become a cross.
- Hold the left-hand mouse button down. The main menu will appear.
- Still holding the mouse button down, move the pointer onto Shutdown then release it. The following dialog box now appears on the screen.



- Click on Yes. The dialog box closes and the program is shut down. This takes about one minute. The following box now appears:



- Switch off the UPS and the monitor.

## Switching off the stations



When an automatic placement system is in use, NEVER just power it off at the main switch (apart from in an emergency).

The station computer runs under the WINDOWS NT operating system. You must shut down the operating system correctly before switching off the station. The procedure for switching off the station is as follows:

- End all placement and gluing operations.

- Check that the z axes of all placement and glue application heads are in their top end position.
- Check whether there are still components on the placement heads.
- Move all gantries into the standby position.
- Click on the 'Shut down computer' option in the 'Operation' menu. This will end all the processes running on the station computer. A prompt will then appear on screen, telling you that you can safely switch off the computer.
- You can now switch off the placement system at the main switch.

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**PLEASE NOTE:**

If you switch off the placement system while it is in use without first correctly shutting down the station computer, the computer might not start again the next time you start up the line.

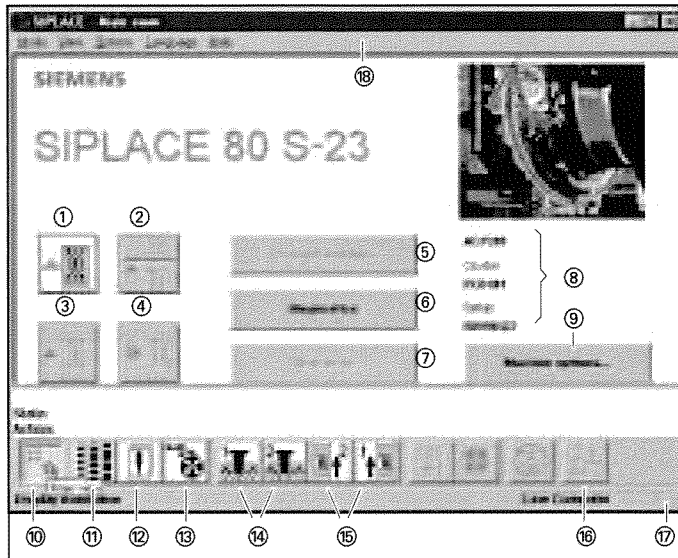
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## Operator Guidance

### "SIPLACE 80S-23 - Main view" menu (user level: 'operator')

↑ UM 2.4

You can control the operation of the machine from the main view. All of the menus and options accessible to the operator can be accessed from the main view. Menus to which the operator has no access and options which have not been activated are grayed out. You can jump directly back to the main view at any time from a menu. If you have changed any settings, a query box will be displayed asking you to save or discard the changes.



#### ① - ④ Buttons for machine control

- ① Process
- ② Stop processing
- ③ Continue processing
- ④ Abort processing
- ⑤ Error information  
If an error has occurred, you can obtain more details concerning the error in this submenu.
- ⑥ Diagnostics  
If an error occurs while a board is being processed, you can start this diagnostics program in order to analyze and correct the error.
- ⑦ Clear error  
Click on this button and the error message will be removed from the screen. For reference purposes the error will continue to be held in the errors list.
- ⑧ This displays the file name of the job, the cluster that was loaded and the set-up.

#### ⑨ - ⑰ Buttons and icons for calling menus for machine control

- ⑨ Machine options
- ⑩ Display main view
- ⑪ Display setup and component verification with barcode
- ⑫ Display errors
- ⑬ PCB feeders
- ⑭ SF gantries 1 and 2
- ⑮ SF PCB transport 1 and SF PCB transport 2 (you cannot access the SF PCB transport 2 menu unless the twin conveyor option has been installed.)
- ⑯ GEM status, placement program and terminal service (option)
- ⑰ Display of the machine's operating mode: line computer, GEM host, stand-alone



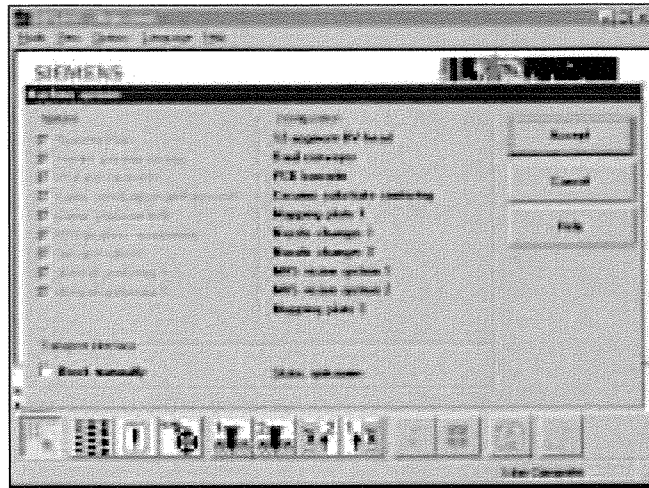
⑩ Menu line with pull-down menus

Via these pull-down menus you also have access to all of those functions and options which you require for machine control.

**'Machine options' menu**

- Click on the Machine options button in the main view. The Machine options control box opens, displaying the options installed and the configuration of the machine. Activated options are marked with a cross in the corresponding check boxes.

↑ UM 2.4.4.1  
↑ UM 3  
↑ UM 5  
↑ UM 11



- Press Cancel to leave the menu without saving changes and press Accept to save the changes.

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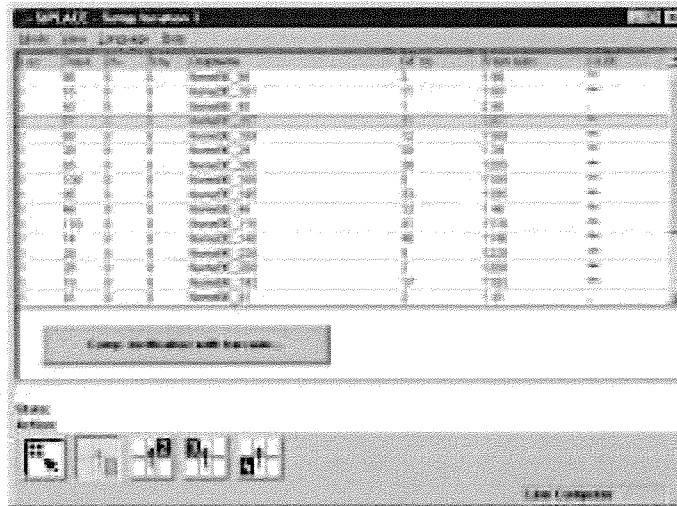
You should however note that for certain options you will need line engineer access authorization as these options can only be activated or deactivated by persons with that authorization.

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## 'Setup' menu

For a given cluster and a given setup you can use this menu to display the setup for each location.

↑UM 3.2



Loc:	Location number
Track:	Track number of the corresponding component feeder
Div:	Feeder division assigned to the component
Tray:	Displays the component's tray number (1 - 28) in the wafflepack changer (on the 80F placement system only)
CmpName:	Name of the component
GF no.:	Package form number of the component
Track barcode:	Track barcode of the component
CO-BC:	Component barcode If a component barcode has been specified, *** will be found in this column and it will be possible to access the Component verification with barcode menu. If a minus sign appears in the column, this means that no barcode has been allocated to the component. The 'Component verification with barcode' button cannot be used.

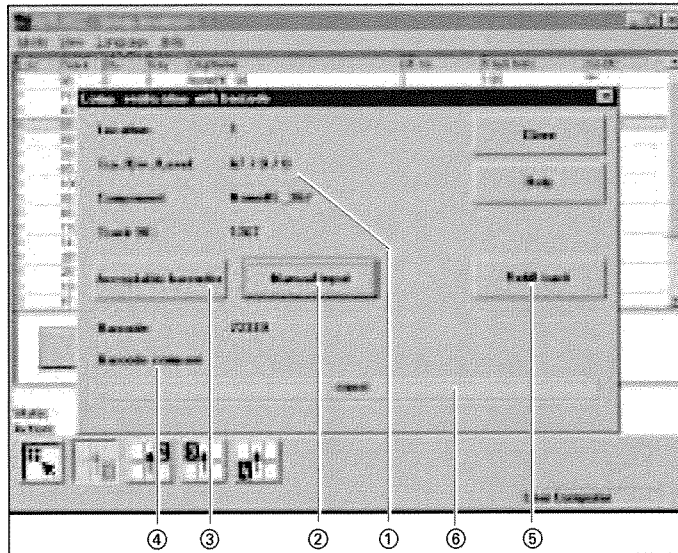
## Component verification with barcode' menu

↑ UM 3.3.2

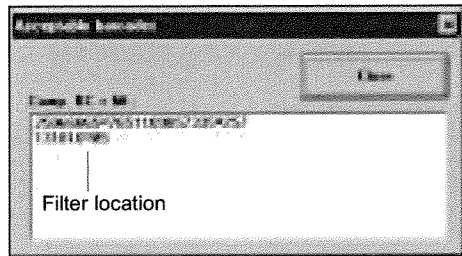
The Component verification with barcode menu cannot be accessed unless you have configured the Component verification with barcode option in the machine options and a track barcode has been defined for the component.

The barcode can be

- read off from the reel with the barcode pen or
- entered manually via the Manual input button.



- ① The data for the selected track are displayed here.
- ② Manual input  
You can enter the barcode manually. The barcode you have entered is compared with the configured data and the result shown in the Barcode compare window. The result displayed is either 'same' or 'different' ⑥.
- ③ Acceptable barcodes  
When you click on this button a display box will be displayed which contains a list of (currently) 6 acceptable barcodes.



### NOTE

If one position in the barcode is an asterisk (\*), this position will not be included in the barcode comparison.

- ④ Compare barcode  
The result of the barcode comparison is either same or different ⑥.
- ⑤ Set track full  
If the barcode read in is the same as the barcode stipulated and if the track is empty, click on the Set track full button or use the component barcode reader to read the RET barcode on the barcode strip.

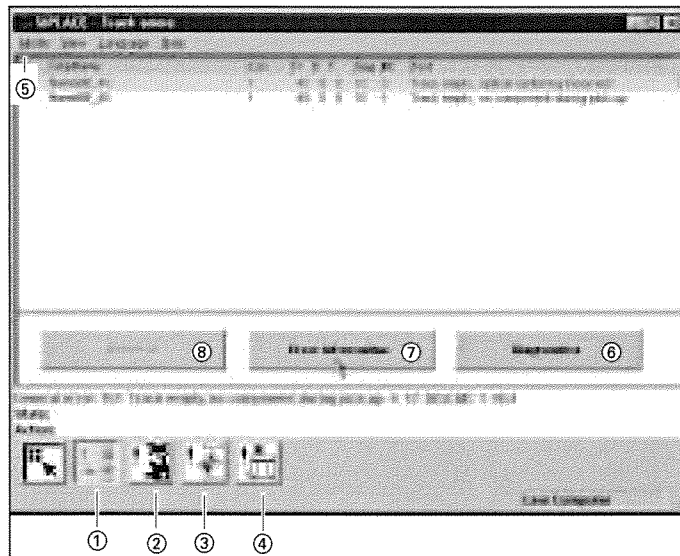
## 'Display errors' menu

↑ UM 3.3

From the Error handling menu you can access the lists corresponding to the following error types:

- Track errors
- Machine errors
- Transport errors
- General errors

The top line will always show the last error to occur.



- ① Button for accessing the track errors menu
- ② Button for accessing the machine errors menu
- ③ Button for accessing the transport errors menu
- ④ Button for accessing the general errors menu
- ⑤ List of errors with title bar

### Key to the abbreviations in the title bar:

No.:	Error number
CmpName:	Name of the component
Loc.:	Component location
Tr/D/T:	Track / division / tray
Seg:	Number of the segment which was used for placing the component
#E:	Error counter - The error counter shows how often this error has already occurred.
Text:	Explanatory text

### The following abbreviations may also be encountered with other error types:

DEV.:	The originator of the error message, e.g. gantry 1, etc.
Transp.:	Conveyor belt affected: 1 = Standard conveyor 2 = 2nd conveyor when the twin conveyor option has been installed
Info 1 or 2:	Information of relevance to Siemens only.
	⑥ Diagnostics Select one particular error line in the list and click on Diagnostics. The diagnostics program will be started.
	⑦ Error information Additional information concerning the marked errors is displayed by the information and help system.
	⑧ Delete all Click on this button to delete all the errors of the same type. If a track is empty, it must be filled before deleting.

## Feeders' menu

↑ UM 3.4

The Feeders menu has four submenus for querying or checking the status of all feeder modules:

- Displaying empty tracks and setting them full
- Omit components. (This menu can only be accessed from the 'Line engineer' operator control level or higher).
- Displaying magazines and changing inventory levels
- Displaying and vibrating linear feeders

With the 80F placement machine there is an additional submenu, Functions with the wafflepack changer.

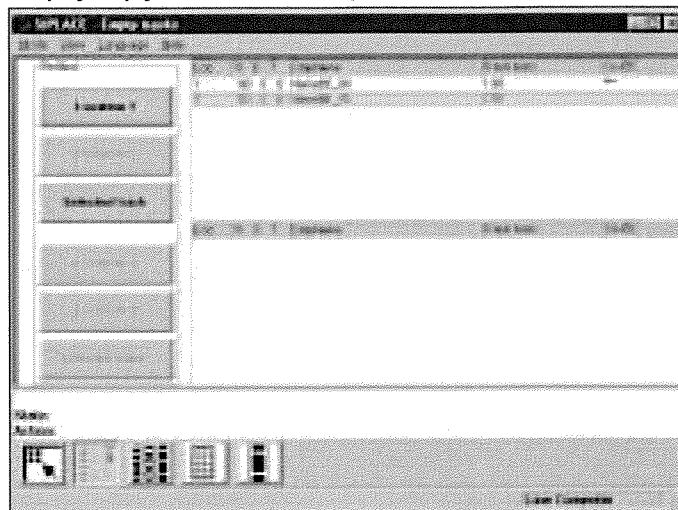
## 'Display and refill empty tracks' menu

↑ UM 3.4.1

The empty tracks of feeder modules are displayed in this menu. After filling, you can set the tracks to full.

Depending on the option which has been activated, the following submenus will be called:

### 'Display empty tracks without component verification'

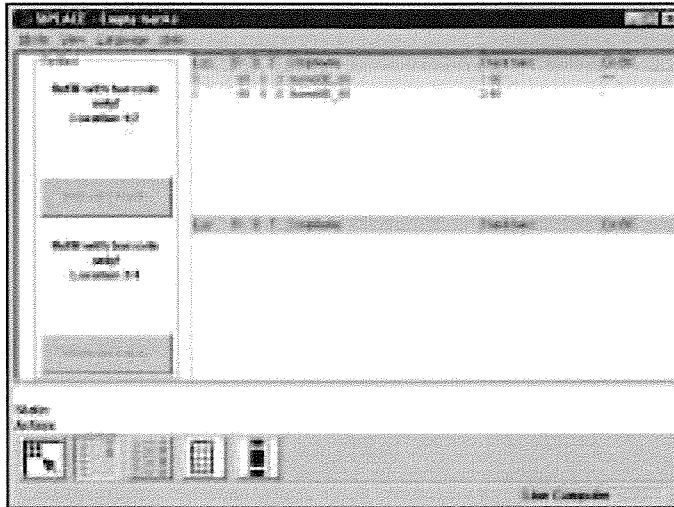


- When you click on the button for location 1, 2, 3 or 4, the entire location which you selected will be set to full.
- When you select a particular feeder module in the list section and then click on the Selected track button, the individual track will be set to full.

↑ UM 3.4.1.1

#### 'Display empty tracks with component verification'

If the Component verification with barcode option has been configured and activated, the following menu will appear:



Within this menu, locations 1 to 4 or individual tracks which have been given a barcode *cannot* be set to full. Apart from displaying the empty tracks, this menu also allows to individually set to full those empty tracks which have not been provided with a barcode. Tracks which do not have a component barcode are indicated by a dash in the CO-BC column. The Selected track button is activated here.

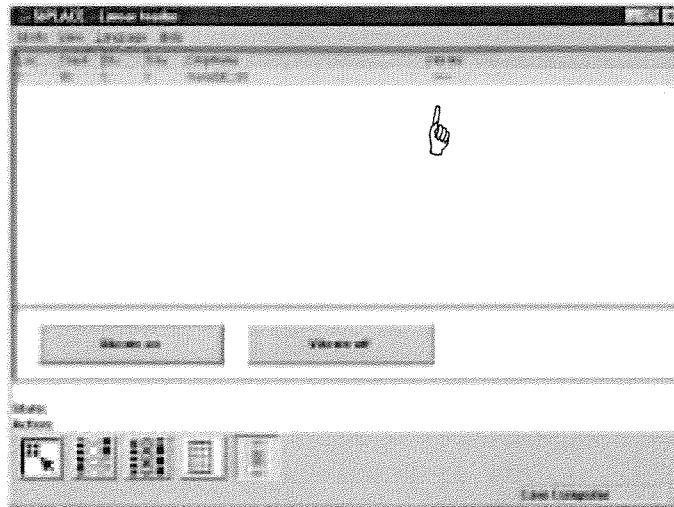
#### 'Display magazines and change inventory levels' menu

↑ UM 3.4.3

This menu is for the 80F placement system only.

#### 'Display linear feeder and vibrate' menu

↑ UM 3.4.4



When you have filled a linear feeder, you can use this menu to select it and turn vibration on.

- Select the linear feeder from the list.

- Click on the Vibrate on button. The arrow in the Vibrate column shows that the module is being vibrated.
- You can stop vibration by clicking on the Vibrate off button.

### 'Single functions - Gantries 1/2' menu

↑ UM 4.2

The Single function menu for gantries 1 and 2 are identical.



Only personnel with the corresponding training and qualifications are permitted to access the Single functions Gantry X (X = 1, 2) menu since improper treatment of the machine may result in serious physical injury and considerable damage to property.

The Single functions Gantry X menu has the following submenus:

- Gantry functions
- Revolver head functions
- Vacuum test revolver head
- Nozzle offset revolver head
- Nozzle configuration
- Nozzle-changer configuration revolver head (if this option has been installed and configured)

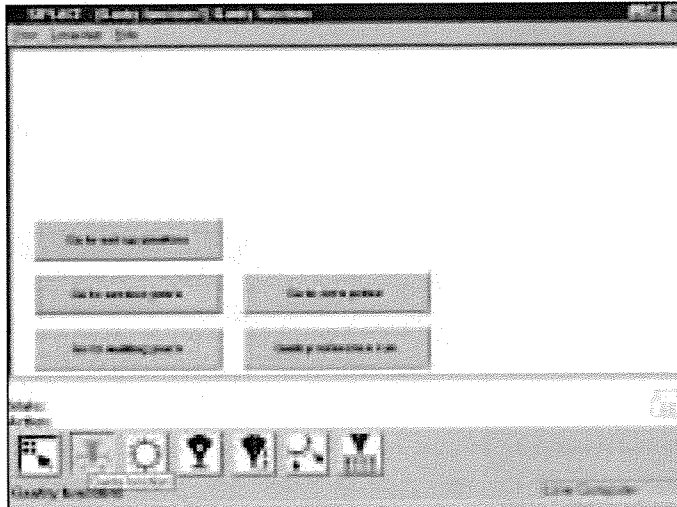
### 'Gantry functions' menu

#### NOTE

All movement functions of the x and y gantry axes have to be initiated with the Start button. You will be requested to do so by the on-screen display 'Press start key'.

If protective covers are still open, you will be asked to close them.

↑ UM 4.2.1



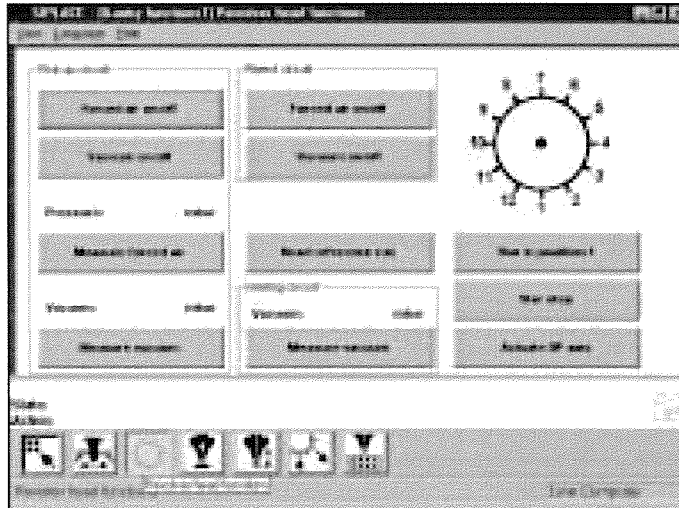
- |                       |   |
|-----------------------|---|
| Go to set-up position | Go to this position if you wish to refill or replace feeder modules.                      |
| Go to service pos'n   | Go to this position when you want to carry out servicing of the placement head or gantry. |
| Go to waiting pos'n   | Move the gantry to this position if the gantry is not required.                           |
| Go to zero pulse      | The gantry travels until it reaches the zero pulse.                                       |
| Gantry reference run  | The gantry carries out a reference run.   |

## 'Revolver head functions' menu

### NOTE

If you wish to carry out revolver head functions with the cover open, this will only be possible with the key-operated switch in position "I".

↑ UM 4.2.2



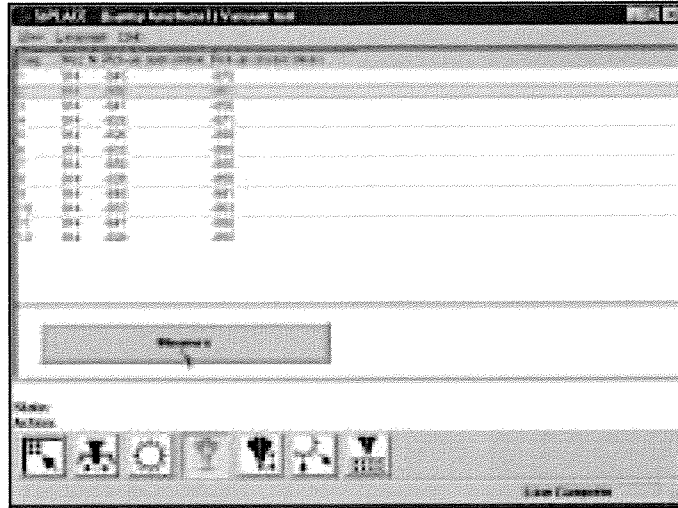
Star in position 1	The star and the z axis of the revolver head carry out a reference run. At the same time the segment at the star position is rotated into the pick-up / placement position.	
Star step	The star is cycled onward by one position each time and its position displayed graphically in the window.	
Actuate DP axis	The nozzle of the segment at the dp1 turning station is rotated by 90°.	
Head reference run	The head axes carry out a reference run. During this, components are ejected into the rejects container.	
Pick-up circuit	Forced air on/off	The forced air is switched on or off at the pick-up position.
	Vacuum on/off	The vacuum is switched on or off at the pick-up position.
	Measure forced air	The pressure of the forced air is measured at the pick-up position and the measured value displayed in mbar.
	Measure vacuum	The vacuum value is measured for the nozzle at the pick-up position and the measured value displayed in mbar.
Reject circuit	Forced air on/off	The forced air is switched on or off at the reject position.
	Vacuum on/off	The vacuum is switched on or off at the reject position.
Holding circuit	Measure vacuum	The vacuum of the holding circuit is measured and the measured value displayed in mbar.



### 'Vacuum test revolver head' menu

↑ UM 4.2.4

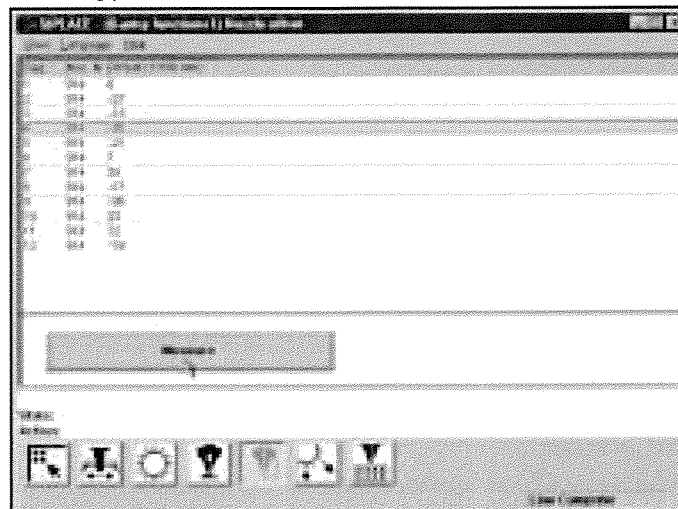
When this function is executed the revolver head performs a head reference run. At the same time the vacuum values of all nozzles at the pick-up position are measured with the nozzles both closed and open. The values are then displayed in the list.



### 'Nozzle offset revolver head' menu

↑ UM 4.2.5

When this function is executed you will be asked to press the start button by a screen message. The gantry will then travel over a measurement position on the board conveyor. Here the z heights of all segments are measured and displayed on the screen. The gantry then returns to its initial waiting position.



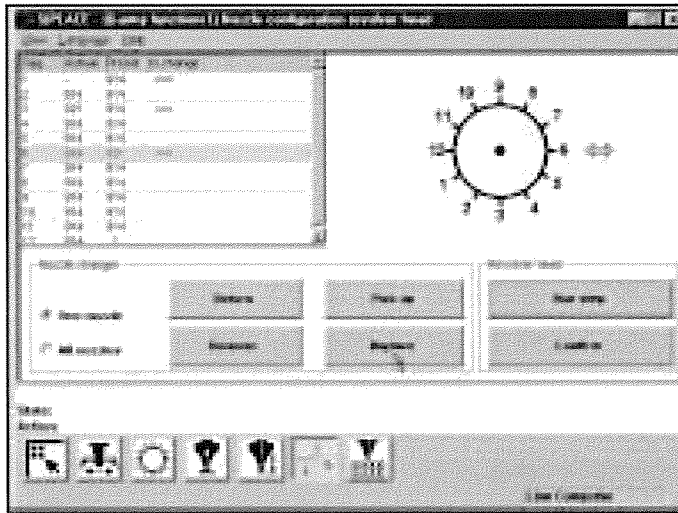
## 'Nozzle configuration revolver head' menu

↑ UM 4.2.6

Within the Nozzle configuration revolver head menu you can view the nozzle configuration and check nozzles. If a nozzle changer has been installed you can change the nozzles with the aid of this menu.

### NOTE

Nozzle-changing is only possible with the prespecified cluster and pre-specified setup.



List field

The nozzle configuration is displayed with the programmed and actual values. Nozzles marked with an arrow in the 'To change' column have to be changed. The cyan bar indicates that the corresponding nozzle is in the changing position.

Revolver head diagram

The arrow shows the changing position for the nozzle in question.

Star step

Each time you click on this button the star is cycled forward one position.

Confirm

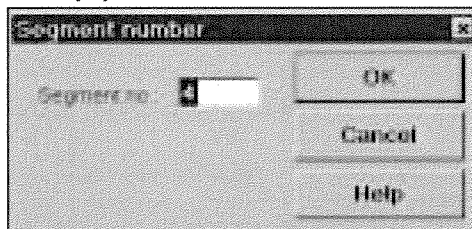
Carry out the following actions in turn.

- Cycle the nozzle marked with an arrow into the changing position.
- Change the nozzle.
- Click on the Confirm button. The display of the programmed and actual values in the lists field has to be identical.

One nozzle

The following functions can only be executed if a nozzle changer has been installed:

When 'One nozzle' is activated, the 'Return', 'Pick up', 'Remove' and 'Replace' functions will only be carried out for the selected nozzle. If you click on one of these functions, an input box will appear so that you can enter the segment number. The default value that appears in the input box is the number of the segment currently at the change position. It is indicated by cyan-colored arrow.



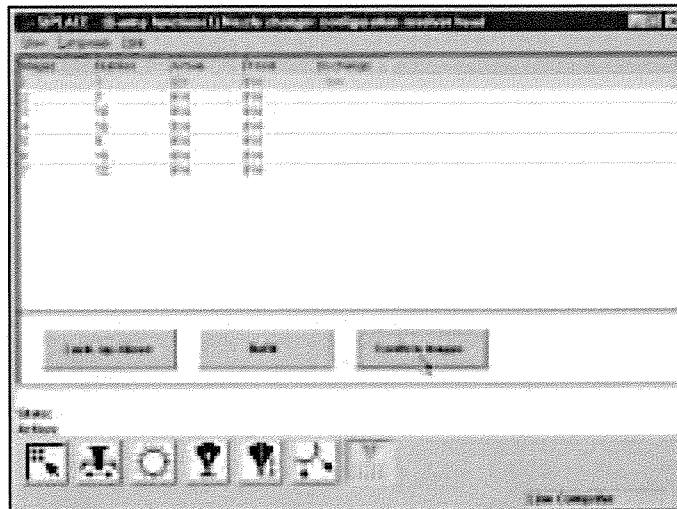
- Click on OK to execute the function.

Return all nozzles	All nozzles are returned to the magazine of the nozzle changer.
Pick up all nozzles	The revolver head picks up all nozzles from the nozzle magazine.
Remove all nozzles	All of the nozzles in the revolver head are discarded into the rejects container.

### 'Nozzle-changer configuration revolver head' menu

↑ UM 4.2.7

- Within this menu you can
- find out the nozzle types of the individual magazines
  - check nozzles and
  - change nozzles.



Magazine:	Magazine number, maximum 7
Number:	Number of nozzles in the magazine
Actual:	Setup currently in the nozzle changer
Preset:	Setup specified by the line computer
Arrow:	If preset and actual values differ, this will be indicated by an arrow.
Lock. op./close	You can open or close the closing plate of the selected nozzle changer magazine in order to fill the nozzle changer magazine manually.
Refill:	Refill the magazine with new nozzles of the same type and click on 'Refill'. The fill level is updated.

---

#### NOTE

Make sure that the nozzle magazines are kept full.

---

- Confirm magazine:
- Set up the nozzles as required in the magazine indicated by an arrow.
  - Move the cyan bar over the corresponding line in the list field.
  - Click on 'Confirm magaz.'. The desired and actual values must agree.

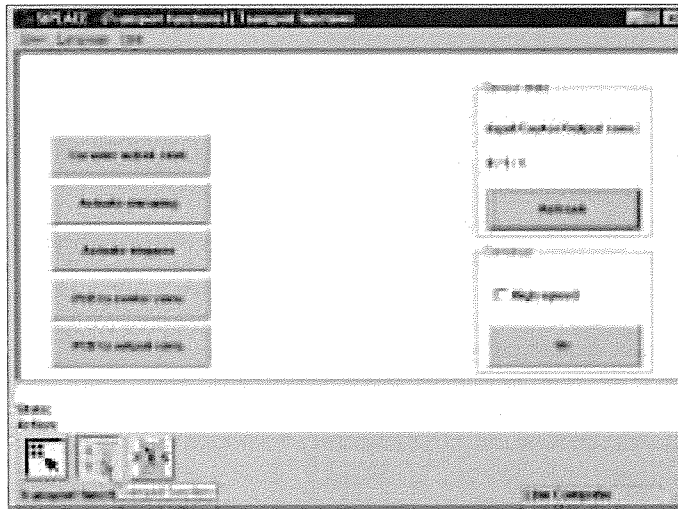
## 'Single functions PCB transport 1' menu

↑ UM 4.4

This menu is used for checking and setting the function modules of the PCB conveyor. If the twin conveyor option is installed, the Single functions PCB transport 2 menu will be activated. The same functions as with PCB transport 1 will then be available to you.

### NOTE

To move the gantries, close the covers and then press the start button. All gantry and head axes will move at low speed.

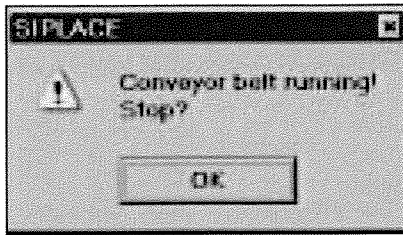


PCB to center conveyor	The PCB is transported from the input conveyor onto the center conveyor and then stopped and clamped.
PCB to output conveyor	The PCB is transported from the center conveyor onto the output conveyor.
Ceramic substrate centering (option)	The following menu items behave like a toggle switch when clicked on. Click on the Ceramic substrate centering button and the substrate centering clamp will be activated or deactivated.
Actuate clamping	Click on the Actuate clamping button and the clamp will be activated or deactivated.
Actuate stopper	Click on the Actuate stopper button and the stopper will be moved in and out of position.
Sensor Input/center/output Refresh	You can use this menu item to interrogate the states of the ultrasonic sensors in the input, center and output conveyors: 1 = has responded 0 = has not responded
Conveyor - high speed	Select different speeds for the conveyor width adjustment.

### NOTE

Make sure that there are no boards on the conveyor belts. The input belt runs at high speed only.

Conveyor - On	This starts the conveyor belts.
---------------	---------------------------------



- Click on **OK** in the dialog box to cancel the procedure.

### 'PCB conveyor width' menu

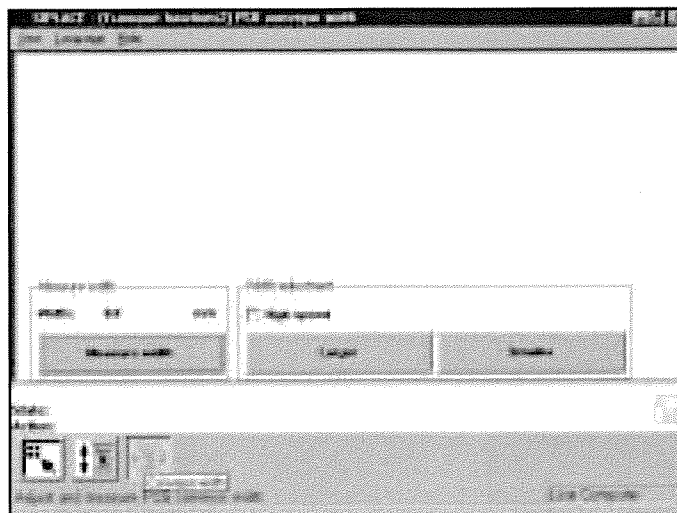
↑ UM 4.4.2

This menu is used for measuring and adjusting the conveyor belt width.



#### CAUTION

Make sure there are no boards on the conveyor belts when you adjust the conveyor belt width.



Measure width

Press this button to display, measure and save the width of the PCB transport.

Width adjustment

With this menu item you can adjust the width of the PCB conveyor at a higher or lower speed as you like. If you have changed the width when you quit the Single functions menu, the conveyor width will be measured with the left-hand gantry and updated. Access this menu once again to see the current width.

## Troubleshooting

↑ UM 3.3

If errors occurs at the placement machine, such as

- track errors
- machine errors
- transport errors
- fiducial errors
- nozzle configuration errors or
- PCB bar code reading errors

it will be stopped and the warning box is displayed on the screen with a message such as 'Track empty error ...' and so on.

- You should comply with the instructions in the warning box and carry out the actions requested.



### WARNING

Only personnel with the corresponding training and qualifications are permitted to carry out actions requiring Line engineer authorization since improper treatment of the machine may result in serious physical injury and considerable damage to property.

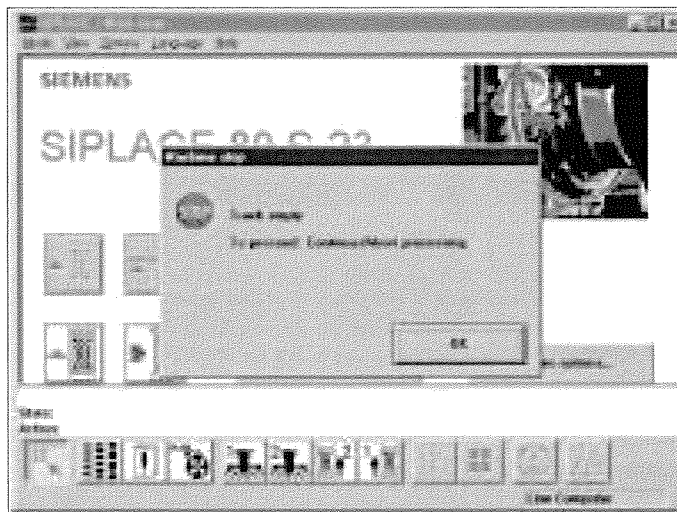
### NOTE

Close the protective covers before attempting to move the axes.  
If you wish to carry out head functions with the cover open, this will only be possible with the key-operated switch in position "I".

## Empty track errors

↑ UM 3.3.1

Placement of a board will continue until there is none left of all of the components which are to be inserted. In this situation the machine will stop and the error message Track empty will appear on the screen.



- Click on OK to acknowledge and then select from the functions displayed:

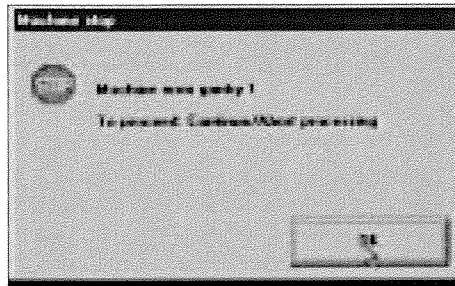
Abort processing

When you select Abort processing the board will be transported onto the output conveyor and the components in the placement head dropped into the rejects container. After this the gantries return to their waiting positions.

Continue processing	Refill the components which have run out, set the refilled tracks to Full and click on Continue processing. Placement will now continue until the board is finished.
Display errors menu	With this menu you can display a list of the errors which have occurred on the screen.
Feeders menu	This menu is used for dealing with empty tracks and track errors.
Single functions	Errors caused by the gantry are corrected with the aid of this menu.
Gantry 1 menu	

## Machine errors

↑ UM 3.3.2 When machine errors occur such as axis errors, for example, the machine will stop.

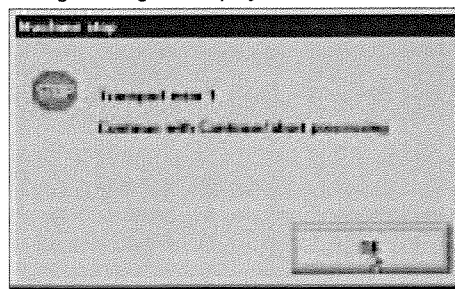


- Click on OK to acknowledge and then select from the functions displayed:

Abort processing	With this function you can abort processing.
Continue processing	With this function you can continue processing.
Display errors menu	With this function you can display the machine errors which have occurred on the screen.
SF Gantries 1/2 menu	Select this menu to correct the error.

## Transport errors

↑ UM 3.3.3 If boards are not being clamped, placement will be interrupted and the following warning box displayed on the screen:

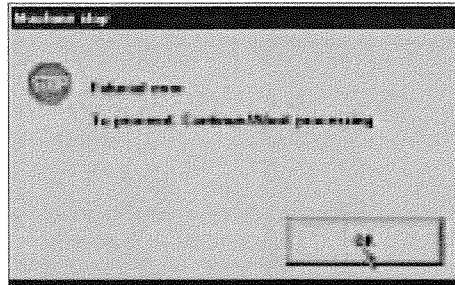


- Click on OK to acknowledge and then select from the functions displayed:

Abort processing	With this function you can abort processing.
Continue processing	With this function you can continue processing.
Display errors menu	With this function you can display on the screen the transport errors which have occurred.
SF Transport 1/2 menu	Select this menu to correct the error.

## Fiducial errors

This error message will be displayed if it was not possible to find or detect a fiducial.

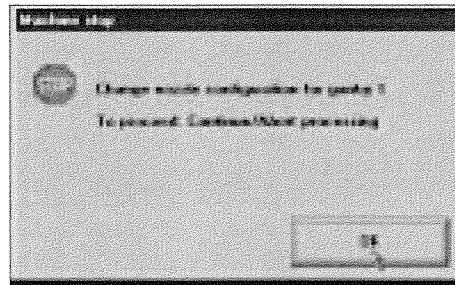


- Click on OK to acknowledge and then select from the functions displayed:

Abort processing	With this function you can abort processing.
Continue processing	With this function you can continue processing.
Display errors menu	With this function you can display the list of the machine errors which have occurred on the screen.
Single functions	Select this menu to correct the error.
Gantry	
Resume placement of PCB without components loss	<ul style="list-style-type: none"><li>• Transport the board onto the output conveyor.</li><li>• Replace the board on the input conveyor.</li><li>• Transport the board onto the center conveyor. The board is stopped there and clamped.</li><li>• Now select Continue placement.</li></ul>

## Nozzle configuration errors

If an error occurs in connection with the nozzle configuration or if the configuration has to be changed, the warning box Nozzle configuration error Gantry 1/2 will be displayed on the screen.



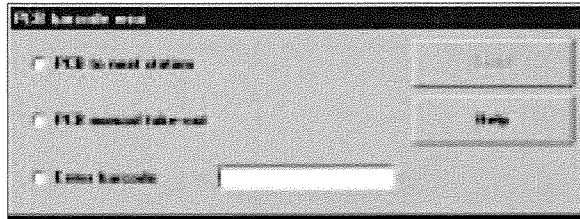
- Click on OK to acknowledge.

SF Gantries 1/2 menu	Select the submenu Nozzle configuration revolver head and change the nozzle. When you quit the SF menu, a head reference run and a height reference run with vacuum test will be carried out.
Continue processing	With this function you can continue processing.



### PCB barcode error (option)

If it was not possible to read the barcode properly, the following selection and dialog box will be displayed on the screen.



- Use the keyboard to enter the correct bar code or
- transport the board.

Continue processing With this function you can continue processing.

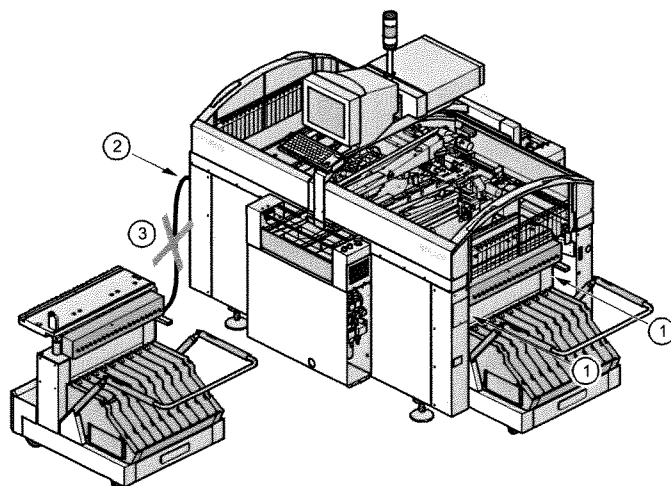
## Docking and Undocking the mobile component table

### Safety instructions for docking and undocking the mobile component table

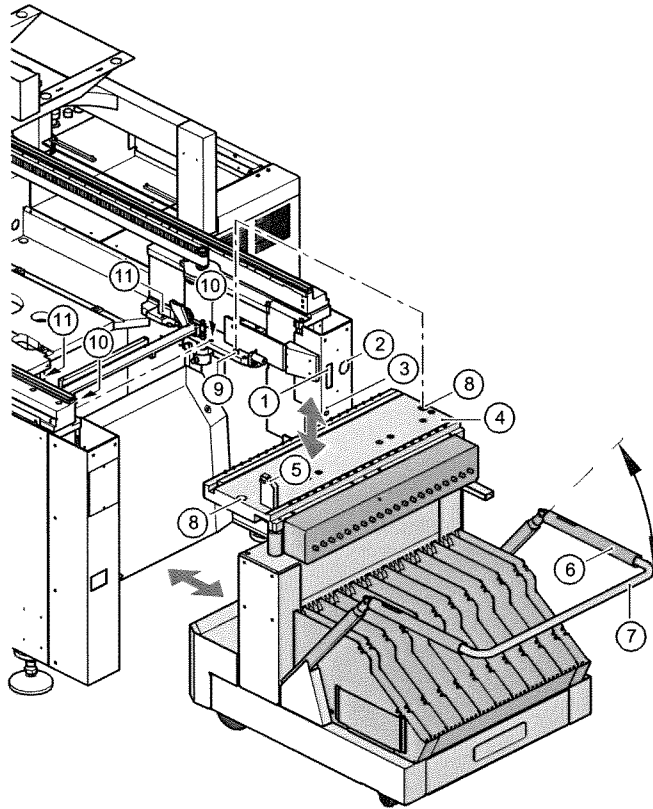


#### WARNING


- Never reach into the gap between the component tables and the placement system frame while the machine is running (item 1).
- Always check that the component table is docked on the placement system before connecting or disconnecting the component table power cable at the socket on the placement system (item 2).
- NEVER connect the component table connecting cable to the socket on the placement system and then operate the component table via the external compressed air control unit (item 3).



## Undocking the component table



- ① Communication interface connector
- ② Power supply connector for the component table
- ③ Compressed air connection
- ④ Component table bed
- ⑤ Button for raising and lowering the component table bed
- ⑥ Actuating tube
- ⑦ Fold-down bracket
- ⑧ Holes for the centering pins
- ⑨ Centering pins
- ⑩ Contact surfaces for the slide rails of the component table
- ⑪ Horizontal tensioners

- Click on the STOP PROCESSING PCB icon in the MAIN VIEW menu. 
- The PCB in progress will be completed. The icons of the SINGLE FUNCTIONS menu will then be activated.
- Click on the desired SINGLE FUNCTIONS GANTRY X icon (gantry 1 or 2).
- Click on the GANTRY FUNCTIONS icon.
- From this menu, click on the GO TO SET-UP POSITION button.
- The selected placement head will move across the PCB transport to prevent it being damaged when the component table is changed.
- Open protective cover of the selected gantry.
- Open the side screens.

- Open the horizontal tensioners (item 11)
- Pull the two actuating tubes (item 6) towards you at the same time and lift up the bracket (item 7) to lock the raised component table bed in its top end position.
- Hold down the button (item 5) for raising the component table bed (item 4) until the component table bed reaches its top end position.
- Unplug the component table power cable (item 2).
- Unplug the component table control cable (item 1).
- Disconnect the compressed air supply (item 3).
- Remove the component table.

### Docking the component table



#### WARNING

Check that the placement head is outside the range of the component table.



#### CAUTION

When docking the component table, ensure that the table bed is in its top end position and the bracket (item 7) is folded up.

- Cut off the empty tapes for the feeder modules.
- Make sure that the contact surface (item 10) for the component table bed is clean.
- CAREFULLY push the component table into the placement system.
- Connect the compressed air supply (item 3).
- Plug in the control cable (item 1).
- Plug in the power cable (item 2) for the component table.
- Pull the two actuating tubes (item 6) towards you at the same time and then lower the bracket (item 7) in order to be able to lower the component table bed.
- Check that the centring holes in the component table bed lie precisely over the centering pins of the placement system.
- Hold down the button (item 5) until the component table bed reaches its top end position.
- Release the button and the component table bed will descend.
- Ensure that the centring pins engage in the centring holes in the component table bed and that the component table bed is fully lowered.
- Fold up the bracket (item 7) of the component table.
- Lock the two horizontal tensioners (item 11).
- Close the side screens and protective cover.
- Press the Start button to start the placement system.



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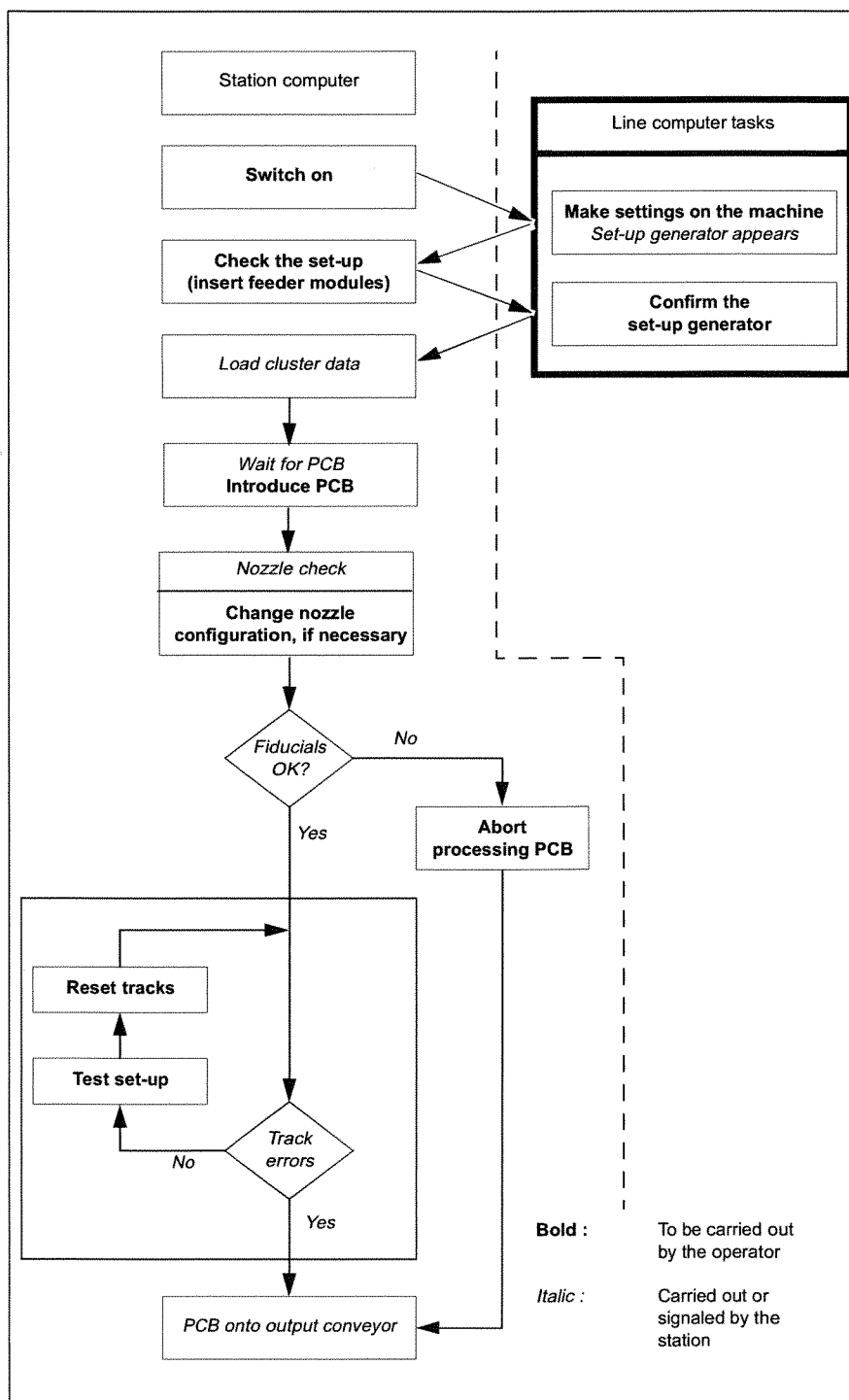
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## Flowchart "Switching ON the SIPLACE Line"



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